PHYSICAL MODEL OF LEPTONS: MASSIVE ELECTRONS, MUONS, TAUONS AND THEIR MASSLESS NEUTRINOUS

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Abstract

The physical model (PhsMdl) of the leptons is offered by means of the PhsMdls of the vacuum and electron,described in our recent works. It is assumed that the vacuum is consistent by dynamides, streamlined in junctions of some tight crystalline lattice. Every dynamide contains a neutral pair of massless point-like (PntLk) contrary elementary electric charges (ElmElcChrgs): electrino (−) and positrino (+). The PntLk ElmElcChrgs of the massless electrino and positrino of some dynamide in the fluctuated vacuum may been excited or deviated by means of some energy, introduced by some photon or other micro particles (MicrPrts). The massless leptons (neutrinos) are neutral long-living solitary spherical vortical oscillation excitations of the uncharged fluctuating vacuum. The massive leptons are charged long-living solitary spherical vortical excitations of its fine spread (FnSpr) elementary electric charge (ElmElcChrg). So-called zitterbewegung is self-consistent strong-correlated vortical harmonic oscillation motion of the FnSpr ElmElcChrg of massive leptons. Different leptons have different self-consistent strong-correlated vortical harmonic oscillation motion of different sizes of their FnSpr ElmElcChrg, which is determined by their Kompton length $\lambda = \frac{h}{mC}$, where m is the mass of the massive leptons. At mutual transition of one massive lepton into another massive lepton its PntLk ElmElcChrg move up by dint of weak interaction in the form of the charged intermediate vector meson W from one self-consistent strong-correlated vortical harmonic oscillation motion of one size into another self-consistent strong-correlated vortical harmonic oscillation motion of another size.

Although up to the present nobody of scientists distinctly knows are there some elementary micro particles (ElmMicrPrts) as a stone of the micro world and what the elementary micro particle (ElmMicrPrt) means, there exists an essential possibility for clear and obvious scientific consideration of the uncommon quantum behaviour and unusual relativistic dynamical parameters of all the relativistic quantized micro particle (QntMicrPrt) by means of our transparent surveyed PhsMdl. It is well known that the physical model (PhsMdl) presents at us as an actual ingradient of every good physical theory (PhsThr). It may be used as for an obvious visual teaching the unknown occurred physical processes within the investigated phenomena, It turned out that all leptons are elementary micro particles (ElmMicrPrt) of two kinds: a charged massive and uncharged massless. The massless leptons (neutrinos) are neutral long-living solitary isotropic three dimensional relativistic quantized (SltIstThrDmnRltQnt) spherical vortex harmonic oscillation (SphrVrtNrmOsc) excitations of the neutral fluctuated vacuum (FlcVcm) without a self-energy at a rest. The massive leptons are charged long-living solitary isotropic

three dimensional relativistic quantized (SltIstThrDmnRltQnt) spherical vortical harmonic oscillation (SphrVrtHrmOsc) motion of its fine spread (FnSpr) elementary electric charge (ElmElcChrg). The PhsMdl of the charged massive lepton will be presented by the PhsMdl of one of them, the DrEl. Therefore so-called zitterbewegung by Schrodinger,which is self-consistent strong-correlated vortical harmonic oscillation (VrtHrmOscs) motion of the FnSpr ElmElcChrg of one of massive leptons, electron, is generalized for all charged massive leptons. Therefore different charged massive leptons have different self-consistent strong-correlated vortical harmonic oscillation motion of different sizes of their FnSpr ElmElcChrg, which is determined by their Kompton length $\lambda = \frac{h}{m\,C}$, where m is the mass of the massive leptons. At mutual transition of one massive lepton into another massive lepton its PntLk ElmElcChrg move up by means of weak interaction in the form of the charged intermediate vector meson W from one self-consistent strong-correlated (VrtHrmOscs) motion of one size into another self-consistent strong-correlated (VrtHrmOscs) motion of another size.

The PhsMdl of the DrEl have offered in all my work in resent nineteen years for bring of light to the physical interpretation of physical cause of the uncommon quantum behaviour of the Schrodinger electron (SchEl) and the relativistic behaviour of the DrEl and give the thru physical interpretation and sense of all its dynamical parameters. Our PhsMdl of the DrEl explain as the physical causes for its unusual stochastic classical dual wave-corpuscular behaviour and so give a new cleared picturesque physical interpretation with mother wit of the physical means of its relativistic dynamical parameters. In our transparent surveyed PhsMdl of the DrEl one will be regarded as some point like (PntLk) ElmElcChrg, taking simultaneously part in four different motions:

A) The isotropic three-dimensional relativistic quantized (IstThrDmnRltQnt) Einstein's stochastic (EinStch) boson harmonic shudders(BsnHrmShdrs) as a result of momentum recoils (impulse kicks), forcing the charged QntMicrPrt at its continuously stochastical emissions and absorptions of own high energy (HghEnr) virtual photons (StchVrtPhtns) by its PntLk ElmElcChrg. This jerky motion display almost Brownian classical stochastic behaviour (BrnClsStchBhv) with a light velocity C during a small time interval τ_1, much less then the period T of the IstThrDmnRltQnt Schrodinger fermion (SchFrm) vortical harmonic oscillation (VrtHrmOsc) motion and more larger then the time interval τ_o of the stochastically emission or absorption of the Hgh-Enr StchVrtPhtn by its PntLk ElmElcChrg. The display of the IstThrDmnRltQnt EinStch BsnHrmShds can be observed at the light (RlPhtn) scattering of free DrEl. Indeed, in a consequence of the above investigation we may really consider the IstThrDmnRltQnt FrthStch VrtHrmOscMtn's "trajectory" of the DrEl turns into cylindrically fine spread path, which has a form of the distorted figure of eight. The participate the FnSpr ElmElcChrg of DrEl in IstThrDmnRltQnt FrthStch VrtHrmOscMtn well spread (WllSpr) the ElmElcChrg of the SchEl. Further the behaviour of the DrEl's FnSpr ElmElcChrg may be treated as a nearly Brownian classical stochastic behaviour (BrnClsStchBhv) of the ClsMicrPrt, taking part in the relativistic random trembling motion (RltRndTrmMtn), during the time intervals τ_1, much less then the period T of the SchFrm VrtHrmOscs and more larger then the time interval τ of the emission and absorption of the Hgh-Enr StchVrtPhtn, the QntElcMgnFld of which form the RslSlfCnsVls of own RslQntElcMgmFld of the DrEl's FnSpr ElmElcChrg. In a consequence of this the product $2\,C\,\tau$ may be considered as the space parth values of the DrEl's PntLk ElmElcChrg, which is passed in the time interval $2\,\tau$ of its absorption and emission (or scattering) of some RlPhtn. In a consequence of this we can easily understand by our felicitous PhsMdl why the classical radius of the LrEl entirely coincides with the size $\sqrt{\langle\,\xi^2\,\rangle}$ of a spherical fine spread spot with an effective scattering surface $\pi\,\langle\xi^2\rangle$. Therefore

the IstThrDmnRltQnt SchFrm VrtHrmOscMtn's trajectory turns into fine spread path of a cylindrical shape with different radii. Therefore the size of this smallest IstThrDmnRltQnt EinStch BznHrmShd's motion of the DrEl's PntLk ElmElcChrg could be determined by the Thompson total cross section. Indeed the averaged cross section of the cylindrical spread path of the IstThrDmnRltQnt StchBsnHrmOscMtn can be determined by the effective total cross section of Thompson of RlPhtn's scattering from the free DrEl's, which has a space distribution with a spherical symmetry may be easily obtained by means of the following simple relations, well-known by us from the classical StchMch :

$$\sigma \;=\; \pi \,\langle\, \xi^2 \,\rangle \;=\; \frac{3\pi}{2}\,\left[\,\frac{4\,e^2}{3mC^2}\,\right]^2 \;=\; \frac{8\pi}{3}\,\left[\,\frac{e^2}{mC^2}\,\right]^2 \tag{1}$$

It is very important to make here, that this EinStchBznHrmShds have the smallest size and the fastest velocity and therefore the described smallest cross section may be represented as a described roughly by the space distribution of the DrEl's FnSpt ElmElcChrg :

$$|\,\Upsilon_o\,(\varrho)\,|^2 \;=\; \left[(\frac{3}{5\sqrt{\pi}})^3\,(\frac{mC^2}{e^2})^3\right]\,\exp(\frac{-\varrho^2}{\kappa_o^2}) \tag{2}$$

where κ_o is parameter of the EinStch BsnHrmShds ($\kappa_o \;=\; (5/3)\,\frac{e^2}{mc^2}$. The space distribution (2) of the DrEl's FnSpt ElmElcChrg is described roughly by an OrbWvFnc Υ, having the following form :

$$\Upsilon_o(\varrho) \;=\; (\sqrt{\pi}\kappa_o)^-\frac{3}{2}\,\exp(\frac{-\varrho^2}{2\kappa_o^2}) \tag{3}$$

B) The isotropic three-dimensional relativistic quantized (IstThrDmnRltQnt) Schrodinger fermion vortical harmonic oscillation motion (SchFrmVrtHrmOscMtn). In a consequence of such jerks of the PntLk ElmElcChrg along the IstThrDmnRltQnt EinStchHrmOscShdMtn "trajectory" the "trajectory" of the DrEl's FnSpt ElmElcChrg, participating in the IstThrDmnRltQnt SchFrm VrtHrmOscMtn takes a strongly broken shape. Only after the correspondent averaging over the "trajectory" of the IstThrDmnRltQnt EinStch BznHrmShdMtn we may obtain the fine spread "trajectory" of the IstThrDmnRltQnt SchFrm VrtHrmOscs' one, having got the form of the distorted figure of an eight. Only such a motion along a spread uncommon "trajectory" of the DrEl's FnSpt ElmElcChrg could through a new light over the SchEl's well spread (WllSpr) ElmElcChrg's space distribution and over the spherical symmetry of the SchEl's WllSpr ElmElcChrg. It turns up that all relativistic dynamical properties of the DrEl are results of the participation of its fine spread (FnSpr) ElmElcChrg in the Schrodinger's self-consistent fermion strongly correlated harmonic oscillations motion. This self-consistent strongly correlated IstThrDmnRltQnt SchFrm VrtHrmOsc's motion may be described mathematically correctly by means of the four components of its total wave function (TtlWvFnc) Ψ and four Dirac's matrices ; $\alpha_j\,(\gamma_j)$ and $\beta\,(\gamma_o)$.

It turned out that all the massive leptons are sums of the corresponding massless lepton (neutrino) and the FnSpr ElmElcChrg, which participates in some kind of a badly known but powerfully correlated self-consistent fermion motion, called zitterbewegung. The different massive leptons are distinguished between them-self by the amplitude size and frequency of its IstThrDmnRltQnt SchFrm VrtHrmOscs, called zitterbewegung. Hence the different aroma of the leptons are different self-consistent spherical excitations of its fine spread (FnSpr) elementary electric charge (ElmElcChrg), which participates in isotropic three dimensional relativistic

quantized (IstThrDmnRltQnt) Schrodinger's fermion (SchrFrm) vortical harmonic oscillations (VrtHrmOscs) of different sizes and frequency, which are determined by their Kompton length $\lambda = \frac{h}{mC}$,where m is the mass of the massive leptons, at different energies, which are determined by their mass m.

In such a way the deviated FnSpr ElmElcChrg can creates own self-consistent resultant quantized electromagnetic fields (QntElcMgnFlds) by dint of own high energy stochastic virtual photons (StchVrtPhtns), emitted by itself at different points of its zitterbewegung trajectory and in different moments in positions of the self-consistent powerfully correlated SchrFrm VrtHrmOscs motion. Therefore the rest self-energy of the ElmMicrPrt $E_o = mc^2$ is created in a results of the electromagnetic interaction (ElcMgnIntAct) between its PntLk ElmElcChrg and MgnDplMm with the electric intensity (ElcInt) and magnetic intensity (MgnInt) of their own QntElcMgnFld. The own resultant QntElcMgnFld of the PntLk ElmElcChrg of the charged ElmMicrPrt is a result of the sum of the QntElcMgnFlds of constantly emitted stochastic VrtPhtns by same PntLk ElmElcChrg from its different positions of the space in the zitterbewegung trajectory at different moments of a time at its self-consistently powerfully correlated SchrFrm VrtHrmOsc motion. Therefore the different ElmMicrPrts, which are different aromas of the leptons, may be considered as stable excitations of different energy in the uncharged fluctuating vacuum (FlcVcm).

C)The isotropic three-dimensional nonrelativistic quantized (IstThrDmnNrlQnt) Furthian stochastic boson (FrthStchBsn) circular harmonic oscillation motion (CrcHrmOscMtn) of the SchEl as a result of the permanent ElcIntAct of the electric intensity (ElcInt) of the resultant QntElcMgnFld of all the low energetic (LwEmr) StchVrtPhtns, existing within the FlcVcm and generated by dint of the VrtPhtn's stochastic exchange between them. The SchEl's motion and its unusual quantized behaviour, described in the NrlQntMch may be easily understood by assuming it as a forced random trembling motion (RndTrmMtn) upon a stochastic joggle influence of the StchVrtPhtns scattering from some FrthQntPrt. Therefore the RndTrmMtn can be approximately described through some determining calculations by means of both the laws of the Maxwell ClsElcDnm and the probabilistic laws of the classical stochastic theory (ClsStchThr). But in a principle the exact description of the SchEl's uncommon behaviour can be carry into a practice by means only of the laws of NrlQntMch and ClsElcDnm.

Since then it is easily to understand by means of upper account that if the ClsMicrPrt's motion is going along the clear definitived smooth thin trajectory in accordance with the NrlClsMch, then the QntMicrPrt's motion is perform in the form of a roughly cylindrical spread path of a cylindrical shape with different radii with centers on a strongly broken line with quite unordered in its direction small straight lines of the RndTrbMtn near the classical one of any NtnClsPrt within the NrlClsMch. As a result of that we can suppose that the unusual dualistic behaviour of QntMicrPrt can be described by dint of

$$r_j = \bar{r}_j + \delta r_j \quad ; \quad p_j = \bar{p}_j + \delta p_j \quad ; \tag{4}$$

It turns up that all the quantized dynamical properties of the SchEl are results of the participation of its WllSpt ElmElcChrg in the isotropic three dimensional nonrelativistic quantized (IstThrDmnNrlQnt) Furth's stochastic (FrthStch) boson harmonic oscillations(BsnHrmOscs). It is used as for a visual teaching the occurred physical processes within the investigated phenomena, so for doing them equal with the capacity of its mathematical correct description by the mathematical apparatus of the both the quantum mechanics : the nonrelativistic (NrlQntMch) and relativistic (RltQntMch).

D) The classical motion of the LrEl along an well contoured smooth and thin trajectory realized in a consequence of some classical interaction (ClsIntAct) of its over spread (OvrSpr) ElmElcChrg, bare mass or magnetic dipole moment (MgnDplMm) with some external classical fields (ClsFlds), described by well known laws of the Newton nonrelativistic classical mechanics (NrlClsMch). This motion may be finically described by virtue of the laws of both the NrlClsMch and the classical electrodynamics (ClsElcDnm);

We must draw attention here that two massive leptons of same aroma may been distinguished also by direction of its twirl. But if only massless leptons have primary twirl the massive leptons may have both twirls. We must draw attention also here that the neutral spherical vortex excitations may been distinguished only by direction of its twirl. As there are possibility for two opportunity twirls then neutrino has left-handed twirl and therefore the spin direction of the neutrino is antiparallel of its impulses direction while the antineutrino has right-handed twirl and therefore the spin direction of the antineutrino is parallel of its impulses direction. For knowing this it is very interesting why many theoretical physicists debate frequently why there are as left-handed photons so there are and right-handed photons, but nobody speaks about photons and antiphotons. However as because massless leptons (neurtinos) participate in the weak interactions therefore the primary twirl may been observanted in the weak interaction. Therefore many of them assert that there is asymmetry between weak interaction and electromagnetic interaction. Indeed if somebody of them call the left-handed photon a photon and call the right-handed photon an antiphoton, then both interactions, weak and electromagnetic should been semantically.

In is easily to perceive that at the attentive analysis of the decay formulas of the different lepton aromas :

$$\tau^+ \longrightarrow \mu^+ + \tilde{\nu}_\tau + \nu_\mu \quad , \tau^+ \longrightarrow e^+ + \tilde{\nu}_\tau + \nu_e \quad , \mu^+ \longrightarrow e^+ + \tilde{\nu}_\mu + \nu_e \quad , \tag{5}$$

$$\tau^- \longrightarrow \mu^- + \nu_\tau + \tilde{\nu}_\mu \quad , \tau^- \longrightarrow e^- + \nu_\tau + \tilde{\nu}_e \quad , \mu^- \longrightarrow e^- + \nu_\mu + \tilde{\nu}_e \quad , \tag{6}$$

It is seen by means of these formulas that we are ability to write the follow equations:

$$\tau^+ = W^+ + \tilde{\nu}_\tau, \quad \mu^+ = W^+ + \tilde{\nu}_\mu, \quad e^+ = W^+ + \tilde{\nu}_e, \tag{7}$$

$$\tau^- = W^- + \nu_\tau, \quad \mu^- = W^- + \nu_\mu, \quad e^- = W^- + \nu_e, \tag{8}$$

It is easily to understand from upper that from both group decay formulas we are ability to assume the existence of the follow decay reactions:

$$W^+ \longrightarrow \tau^+ + \nu_\tau, \quad W^+ \longrightarrow \mu^+ + \nu_\mu, \quad W^+ \longrightarrow e^+ + \nu_e, \tag{9}$$

$$W^- \longrightarrow \tau^- + \tilde{\nu}_\tau, \quad W^- \longrightarrow \mu^- + \tilde{\nu}_\mu, \quad W^- \longrightarrow e^- + \tilde{\nu}_e, \tag{10}$$

The upper decay reaction remain us about the emmiting of a real photon (RlPht) by stimulated atom. Really as we well know the Rlpht is no found within stimulated atom before its radiation.Therefore we can speak only about the electrino,positrino and neutrinos.That is why we can use the following formal registration:

$$\tau^+ = (+) + \tilde{\nu}_\tau, \quad \mu^+ = (+) + \tilde{\nu}_\mu, \quad e^+ = (+) + \tilde{\nu}_e, \tag{11}$$

$$\tau^- = (-) + \nu_\tau, \quad \mu^- = (-) + \nu_\mu, \quad e^- = (-) + \nu_e \tag{12}$$

But the upper decay reaction have no means that the charged intermediate vector bosons W are composed from some aroma lepton and its neutrino, as in reality the charged intermediate vector bosons W are created only in the time of transfer beginning od the PntLk ElmElcChrg

from one ElmPrt to other ElmPrt and are existed only during the time interval of same transfer. We can distinctly see this from the following equation:

$$Z^o = \nu_e + \tilde{\nu}_e \quad , \quad Z^o = \nu_\mu + \tilde{\nu}_\mu \quad , \quad Z^o = \nu_\tau + \tilde{\nu}_\tau \quad , \tag{13}$$

The equation (13) shows that the neutral intermediate vector boson Z^o contains two opposite PntLk ElmElcChrgs (electrino and positrino). During the time interval of the decay of the neutral intermediate vector boson Z^o both its opposite PntLk ElmElcChrgs reconstruct own self-consistent motions and annihilate, formating one dynamide, while its flat motions decay in two parallel neutral spherical vortical excitations: neutrino and antineutrino of same aroma.

But the upper decay reaction have no means that the some massive charged lepton is composed from same aroma neutrino and the PntLk ElmElcChrg of the negative charged intermediate vector bosons W^- and every massive antilepton is sum of its antineutrino and positive charged intermediate vectorial boson W^+. Indeed, although the decay of one lepton from another lepton is accompanied with leaping its negative PntLk ElmElcChrgthe in a state of the negative charged intermediate vectorial boson W^- from one neutrino to another neutrino. But this decay don't means that every massive lepton is sum of its neutrino and negative charged intermediate vectorial boson W^- Really we can think that some massive lepton receives energy from fluctuating vacuum (FlcVcm) by dint of some virtual photon (VrtPhtn) or virtual gluon (VrtGln) and therefore it generate neutrino of its aroma in time moment of its transition in state of the negative charged intermediate vectorial boson W^- In such the way the unstable negative charged intermediate vectorial boson W^- gives back of FlcVcm borrowing from it energy in form of the VrtPhtn or VrtGln and after that its negative PntLk ElmElcChrg emits the antineutrino of same aroma, which aroma has the lepton massive state, which it occupy, without disintegrating itself of the negative charged intermediate vectorial boson W^- and massless neutrino.

However there is possibility to understand by means of upper decay relation why exist lepton and antilepton numbers and weak charges, satisfying the conservation laws and why absent the electric charge from symmetry law. Indeed, if negative charged intermediate vectorial boson W^- has spin minus $\hbar$, then in order to some lepton with spin a minus half $\hbar$, we must add only the antineutrino with spin a half $\hbar$. If we wish to make some antilepton, then to neutrino with a spin minus half $\hbar$ we must accompanied with leaping the positive charged intermediate vectorial boson W^+ with a spin $\hbar$.

The upper decay group formulas teach us that the PntLk ElmElcchrg of different leptons participates in some IstThrDmnRltQnt self-consistent and powerful correlated SchrFrnHrmOsc motion (zitterbewegung) of different sizes and at different energies. Therefore at the mutual transitions between them there give birth of pair neutrino ν_l and antineutrino $\tilde{\nu_l}$ of the same aroma and the PntLk ElmElcChrd pass from own neutrino (antineutrino) to the new birthed neutrino (antineutrino) in the form of the charged intermediate vectorial boson W. This is a natural way from which we can see the unity of the field neutral excitations in the FlcVcm and its substantial charged excitations, offered by modernity relativistic quantum mechanics (RltQntMch), quantum electrodynamics (QntElcDnm) and quantum theory of field (QntThrFld). The electric interaction (ElcIntAct) of the resultant QntElcMgnFld of all the StchVrtPhtns, exchanged from the FlcVcm with the ElmMicrPrt's PntLk ElmElcChrg creates their diverse oscillations along its classical well contoured smooth and thin trajectory, spread and turned it into wide path, described by its OrbWvFnc (Ψ) within the nonrelativistic quantum mechanics (NrlQntMch) .

It turns out that we describe only three aroma massive and massless leptons. In approximation of a mathematical correct substitution of the three one-dimensional powerful correlated fermion harmonic oscillations with three one-dimensional independent boson harmonic oscillations the size of each aroma of leptons is determined by length of its Kompton wave $\lambda = \frac{h}{m.C}$. As the masses of three massive lepton aromas have very big different values $(1, 207, 1785)m_eC^2$, then and the size of each lepton aroma must very strong differ one from other. Here I wish to show one very interesting coincidence. Indeed, if the total energy of each charged massive leptons is a sum of its self-energy of rest $m.C^2$ and of the potential energy of its PntLk ElmElcChrg in own averaged QntElcMfnFld $(2/3)\,\frac{e^2}{C\hbar}\,m.C^2$, then the total energy of the muon μ $m_\mu.C^2$ is equal of the sum of its self-energy of rest $m_\mu.C^2$ and of the energy of the electron $m_e.C^2$, which is the potential energy of its PntLk ElmElcChrg in own averaged QntElcMgnFld $\frac{2}{3}\,\frac{e^2}{C\hbar}\,m_\mu.C^2$. Indeed :

$$m_e \left\{ 1 + (3/2)\frac{C\hbar}{e^2} \right\} \cong m_\mu \quad \text{or} \quad (\,1 + 205.54\,) \cong 206.7 \tag{14}$$

Really by means of upper equation (14) we can assert that the total energy $m_e.C^2$ of the electron is an equal of the potential energy of the PntLk ElmElcChrg of muon in own averaged QntElcMgnFld. From research of the upper decay formulas we can understand that the weak interaction is result of the charged (or neutral) intermediate vector bosons W (or Z) mutually interchange between leptons and others elementary micro particles (ElmMicrPrt). The formation of the lepton with a spin of the half of $\hbar$ from charged intermediate vector boson W with a spin of one $\hbar$ and another lepton with a spin of the half of $\hbar$ determines the choice rule of the participating the lepton in this interaction.

The relation $E^2 = p^2c^2 + m^2c^4$ between the energy, impulse and mass of the ClsMacrPrt may be obtained through the use of the Maxwell's equations of the classical electrodynamics (ClsElcDnm),as a result of the relation between the harmonic oscillations of the impulse of a charged ClsMacrPrt and the vector-potential of its ClsElcMgnFld. The parameters of own resultant QntElcMgnFld in the point of the moment positions of the QntMicrPrt's PntLk ElmElcChrg and value of its rest-self energy may be determined by the agency of the mathematical apparatus of the RltQntMch, QntThrFld and QntElcDnm. The created by this way own resultant QntElcMgnFld have zero values of the electric intensity (ElcInt) of own resultant QntElcFld in the point of the moment position of a MicrPrt's PntLk ElmElcChrg and doubled value of the magnetic intensity (MgnInt) of own resultant QntMgnFld in this point in a respect of the MgnInt of the ClsMgnFld, created by the small spread (SmlSpr) ElmElcChrg, participating in isotropic three dimensional relativistic classical (IstThrDmnRltCls) Debay boson harmonic oscillations (DbBsnHrmOscs) with same the energy.

The electric interaction (ElcIntAct) of the resultant QntElcMgnFld of the StchVrtPhtns from the fluctuating vacuum (FlcVcm) with a ElmMicrPrt's WllSpr ElmElcChrg creates their diverse oscillations along its classical trajectory, spread and turned into an wide path within the nonrelativistic quantum mechanics (NrlQunMch). Such IstThrDmnRltQnt Furthian stochastic boson circular harmonic oscillation motion (FrthStchBsnCrcHrmOscMtn) secures the existence of an additional mechanical moment (MchMm) of the QntMicrPrt, as and anomalous part of its MgnDplMm. The energy of the StchVrtPhtns exchanged between QntMicrPrt's WllSpr ElmElcChrg and the FlcVcm gives a possibility of the QntMicrPrts to make tunneling through potential barriers, which are impassable in a classical way. The QntMicrPrt gathers from the FlcVcm at its IstThrMrnRltQnt BrnStchBsnCrcHrmOscMtn for potential energies of an averaged ElcFld of its WllSpr ElmElcChrg. Therefore the potential energies of this field don't take part in equations between an inserted energy in the beginning of the birth of the ElmMicrPrts

and obtained after its end.

These isotropic three dimensional relativistic quantized (IstThrDmnRltQnt) Schrodinger fermion vortical harmonic oscillation (SchFrmVrtHrmOsc) motion (zitterbewegung) of the ElmMicrPrt's FnSpr ElmElcChrg correspond to its inner harmonical motion, introduced by Louis de Broglier. The Schrodinger's zitterbewegung is some powerful correlation fermion self-consistent motion, who minimizes the rest self-energy of the ElmMicrPrt and secures the continuous stability of the Schrodinger's wave package (SchWvPck) in the space inanalogous of the Debay wave package (DbWvPck). In such a way we understand that the energetical advantage of the self-consistent strong correlated zitterbewegung, which minimizes the energy of ElcMgnSlfAct between the FnSpr ElmElcChrg and its own resultant QntElcMgnFld secures the stability of the SchrWvPck in the space and time.

The emission and absorption of high energy StchVrtPhtns by the PntLk ElmElcChrg of the charged ElmMicrPrt forces itself to make a isotropic three-dimensional relativistic quantized (IstThrDmnRltQnt) Einstein stochastic (EinStch) boson harmonic oscillation motion (BsnHrmOscMtn), which makes the smooth trajectory of the SchrFrm VrtHrmOscMtn a thickly and strongly broken line with shortest and very disordered straight lines. The fine spread (FnSpr) of the SchrFrm VrtHrmOscMtn's trajectory by very rapid jerk EinStch BsnHrmOscMtn may be observed at the scattering of the light (RlPhtns) on the free Dirac electrons (DrEl). Indeed, the IstThrDmnRltQnt SchrFrm VrtHrmOscMtn's trajectory turns into roughly spread path of a cylindrical shape with different radii. The averaged cross section of the cylindrical spread path of the IstThrDmnRltQnt StchBsn VrtHrmOscMtn can be determined by Thompson total cross section $\sigma = \frac{8\pi}{3}\left[\frac{e^2}{mC^2}\right]^2$ of the of the light (RlPhtns) at the free DrEl ,which determines the classical radius $r_o = \frac{2e^2}{mC^2}\sqrt{2/3}$ of the LrEl.

Although till now nobody knows what the ElmmICRpRT means, there exists a possibility for a consideration of the unusual behaviour of the quantized micro particles (QntMicrPrts), of such as leptons and adrons by dint of an analogy with the transparent surveyed PhsMdl of the DrEl. By our PhsMdl of the leptons at transition of the PntLk ElmElkChrg from one massless leptons (its neutrino) to another massless leptons (its neutrino) it takes form of a charged intermediate vector meson W. In such a way the weak interaction between two leptons may be realized by a transition of one PntLk ElmElcChrg from one neutrino (anti neutrino) to another neutrino (antineutrino) in the form of a charged intermediate vector meson W.

It seems to me the existance of two very interesting facts,having common physical cause.The first is concurrence of the energy of one degree of freedom in charged lepton μ-meson and in charged admeson π-meson. Indeed, if in isotropic three dimensional solitary vortical harmonic ocsillations of FnSpr ElmElcChrg of μ-meson have three degrees of freedom and therefore $3\,\hbar\,\omega = 2\,m\,C^2 = 213.2$Mev. Hence the energy of one degree of freedom can be determined $\frac{\hbar\,\omega}{2} = 35.5$Mev. If we take into consideration that the FnSpr ElmElcChrg of π-meson takes participation in two quasi-plane circular harmonic oscillations with opportunity orientations and therefore has energy $2\hbar\omega = 139.6$Mev. Hence the energy of one degree of freedom can be determined $\frac{\hbar\,\omega}{2} = 34.9$Mev. As we can see by comparision of two results this coincidence is very accurate. On this reason we can assume that the areas of their oscillations must also coincidence and therefore the OrbWvFnc of both FnSpr ElmElcChrg. May be therefore the decay of the positive (negative) charged π-meson in 100% occurs through the positive (negative) μ-meson and μ-neutrino (antineutrino). This second coincidence gives us many correct answer of the question for inner structure of the elementary micro particles (ElmMicrPrts).

I think that is very interesting to wtite the equations of the incomprehencible decay down:

$$\pi^+ \Longrightarrow W^+ \Longrightarrow \mu^+ + \nu_\mu \quad , \pi^- \Longrightarrow W^- \Longrightarrow \mu^- + \tilde{\nu}_\mu, \tag{15}$$

$$\pi^+ \Longrightarrow W^+ \Longrightarrow e^+ + \nu_e \quad , \pi^- \Longrightarrow W^- \Longrightarrow e^- + \tilde{\nu}_e, \tag{16}$$

As for the radiation of the spontaneous real photon (RlPhtn) from the excitative atom it is necessary the presence of the virtual photon (VrtPhtn) for the creation of the electric dipole moment (ElcDplMm), so for the decay of a charged π-meson it is necessary the presence of a virtual gluon for an overturning of the spin of one of its quarks, by which charged π-meson turns into charged virtual ρ-meson, which can immediately decay into charged intermediate vector boson W. At the subsequent transfer of the charged intermediate vector bozon W in a pair of massive and massless leptons of equal aroma the participating in the decay gluon go back in the FlcVcm. Therefore instead of upper decays we must used the following equations :

$$\pi^+ + \delta \Longrightarrow W^+ \Longrightarrow \mu^+ + \nu_\mu \quad , \pi^- + \delta \Longrightarrow W^- \Longrightarrow \mu^- + \tilde{\nu}_\mu, \tag{17}$$

$$\pi^+ + \delta \Longrightarrow W^+ \Longrightarrow e^+ + \nu_e \quad , \pi^- + \delta \Longrightarrow W^- \Longrightarrow e^- + \tilde{\nu}_e, \tag{18}$$

For the first time in a hundred-years history of an electron, common known as the smallest stable ElmMicrPrt, there exist a posibility for a consideration of its unusual behaviour by means of a transparent PhsMdl realized in a natural way without any irreconcilable contradictions. I cherish hope that our consideration from quit new point of view of my PhsMdl of all leptons by means of the PhsMdl of the electron will be of great interes for all scientists. Our PhsMdl explain as the structure of leptons and adrons and the nature of their interaction so the existence of a possibility for joint description of a field and substantial form of the matter as unity whole in the physical science, which are submitted to an united, fundamental and invariable laws of nature.

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